A284 Lyminster Bypass (North) – March Progress Update

Date: 08/04/2024

This is the latest monthly newsletter updating you on progress made in the construction of the Lyminster Bypass. We hope you find it useful, but please contact us if there is anything you would like more information on or would like to give us any feedback.

North of Ancient Hedgerow

The deep soil mixing (improving the soil's weight bearing capacity through use of a cement-based additive) at the Northern end of our site is coming to an end. The ground is now very firm and is a great foundation for the road. The next stage of the job will be installing sheet piles. These are metal corrugated sheets which will prevent excess pressure on the culvert and will go either side of it. The culvert is prefabricated, so it will be lifted down into the designated area using a crane.

The previously constructed chalk embankment leading up to the culvert, the level of this has been checked and is around the current road height. Once all drainage is installed in this section, type 1 (limestone rocks varying in size) will be laid and then the tarmac will follow.

Image 1 Northern soil mixed area.

Image 2 Chalk embankment.

Ancient Hedgerow to Bridleway

We have installed channel drains near the Pegasus crossing. These quickly take surface runoff from the road and have an outfall into manholes. Starting work on the link road (the connection between the new road and the existing road), we have stripped the soil to subgrade level (designed level of soil which lays beneath subbase). The next stage will be to put the subbase (type 1) onto the area, we put this layer on as it provides a stable foundation for the road.

The Narrow Filter Drains (NFDs) will then be cut into the 'road box' (shape of the road). NFDs provide drainage for surface and sub-surface water. Once these have been cut out and the stone has been replaced, then the link road will be ready to be surfaced with tarmac.

Image 3 Link road.

Image 4 Channel drains.

Bridleway to Black Ditch

For the viaduct, we are nearing completion of the concrete pours. Pier 10 is one of the last piers that will get poured with concrete. The North abutment steel work is ongoing as it is being prepared for the concrete pour. Abutments are the concrete foundations at each end of the viaduct.

Image 6 Pier 10 steelwork.

Image 7 North abutment.

South of Black Ditch

The final section of the South abutment will be poured with the final part of north abutment and the end spans, finishing off the concrete pours for the bridge. Once this has finished, the South abutment embankment will start to be built up with the soil. This soil will then be strengthened, using the same technique as the North end of our site, mixing cement into the ground.

Class 6N, a sandy mixture, will be placed next to the abutment and will taper out. This is used as a transition between the viaduct and the soil mixed ground, ensuring weight will be evenly spread.

Image 8 Bridge deck.

Image 9 South abutment.

School visits

Our Public Liaison Officer, Shannon Acton-Brown, visited 2 secondary schools recently, to assist with academic events for the pupils.

On 27th February, she attended Worthing High School to help with mock interviews in aid of their annual "Big Interview Day" for year 10's. The mock interviews are very beneficial for many reasons - boosting confidence for leaving school, learning new interview skills, engagement tools and learning from their feedback.

On 13th March, she attended Chichester High School to participate in the full school career fair day. This event was for years 9,10,11,12 and 13, to gain knowledge of different industries and a chance to ask questions to employees.

For further information about the scheme please visit the Lyminster Bypass North page on West Sussex County Council's website:

https://www.westsussex.gov.uk/roads-and-travel/roadworks-and-projects/road-projects/lyminster-bypass-north/

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A284 Lyminster Bypass (North) – April Progress Update

Date: 07/05/2024

This is the latest monthly newsletter updating you on progress made in the construction of the Lyminster Bypass. We hope you find it useful, but please contact us if there is anything you would like more information on or would like to give us any feedback.

As you may be aware, there has been and will be intermittent periods of traffic lights along A284 Lyminster Road. Please be advised that traffic management will only be used when necessary for workers safety or physical carriageway intrusion of construction works, flexibility is required to maintain programmed operations.

North of Ancient Hedgerow

Since finishing the soil mixing north of the culvert, we have undertaken Cone Penetration Tests and core sampling. This gives an idea of the soil parameters of the newly cemented soil, including strength, ensuring settlement (movement over time) of the new road is negligible.

The chalk embankment just south of Brookfield stream has also been tested. The plate bearing test showed that the chalk was a very solid foundation and so further drainage works have continued. We have a badger crossing in this area, this is a 600mm diameter set of concrete pipes which run underground, with the idea of preventing badgers from wandering on the road.

Sheet piling has begun for the new culvert. The metal sheets are used to surround the culvert as it is installed. This is because a trench is dug out for the culvert and the metal sheets prevent it collapsing. These are installed using two machines which lift and vibrate the pile into the augured holes, the augured holes were made by churning the ground up to 9m depths to loosen it so the piles go in easier.

The northern swale has been built up, consisting of 4 check dams made by stacking concrete bags in a synchronised format. These are used to slow the flow rate of water which enters Brookfield stream, preventing a flash flood and provides extra storage for water.

Image 1 Sheet piling.

Image 2 Badger crossing dig out.

Image 3 Swale with concrete check dams

Ancient Hedgerow to Bridleway

The link road has been scraped back to the formation of the subgrade material (the original ground material that was present on the site). Profile boards were used for this which is common practice to ensure the link road is to the correct level we use wooden profiles which run along both sides of the road. These are made up to be 1m above the finish road level. Once they are installed another board, is held in the middle. By eyeing along the boards, it can be seen how far down the ground level needs to be dug.

The subgrade material is tested with a CBR (California Bearing Ratio) test; applying a large amount of force to a localised area and recording how much the area settled. Once the test has been passed, the area is ready to be laid with the subbase material, type 1 aggregate (a type of limestone).

Image 4 Link road.

Image 5 Link road with type 1 aggregate.

Bridleway to Black Ditch

April finishes off our concrete pours on the viaduct. The ends of the viaduct have had a waterproof coating applied and the drainage along the edge wall has been installed, this is so the excess rainwater has somewhere to drain. The embankment by the northern end of the viaduct is being built up in layers and each is tested to prove it is sufficiently compacted.

Image 6 Northern end of the viaduct

Image 7 Concrete deck by the end of viaduct

South of Black Ditch

As it is the season to plant aquatic plants, the southern pond has been attended to with 20 different plants being planted, this will increase the biodiveristy of the area. The southern pond has been made to be a wetpond, this means it will have a pool of water throughout the year, allowing different speicies of plants and animals to thrive.

The southern end of the project is being built up to the level of the existing road, this is so the area can be deep soil mixed, churning cement into the ground to improve the strength of the soil. The soil mixing will go right up to the south abutment as the ground material is currently a very soft clay.

Image 8 Aquatic plant bedding.

Image 9 South abutment.

Work in the local community

On Wednesday, 20th March, we successfully completed the installation of a new gate for the local church in Poling. This project was initiated after attending the Poling Parish Council meeting, where we recognized the need for a new gate at the entrance of the church. Feedback from residents has been positive, and we are pleased to have contributed this new feature to their community.

Image 10 New gate for a church in Poling

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A284 Lyminster Bypass (North) – May Progress Update

Date: 06/06/2024

This is the latest monthly newsletter updating you on progress made in the construction of the Lyminster Bypass. We hope you find it useful, but please contact us if there is anything you would like more information on or would like to give us any feedback.

North of Ancient Hedgerow

This month we have had a 300-tonne crane come in to lift the new prefabricated concrete culvert, this is a structure that allows Brookfield stream to flow underneath the road. The culvert is divided into 7 sections which are mechanically pulled together to ensure it is watertight. The culvert has wing walls, two outward facing walls on each end which provide an increased level of stability. The sheet piles (corrugated metal sheets) are used to prevent the ground from caving in around the culvert, once the area is backfilled, they can be taken out.

Image 1 Prefabricated culvert.

Image 2 Access track from chalk level.

We have also been focusing on getting the ground prepared for the road construction. This process involves using a subgrade material (we generally use chalk which is the same type of material found on the site, although this can be imported where necessary). Before the next stage, this ground will need to be tested to ensure its strong enough to manage the weight of vehicles. This done through CBR's by measuring the pressure required to penetrate the soil (Californian Bearing Ratio). Once tested, the area is now ready for the placement of type 1 subbase material. We use a limestone 'type 1' as subbase, a type of stone varying in size meaning it can be tightly compacted with no spaces. The type 1 is then tested, again using CBR's, to ensure that the whole area is hard. The road is then ready for the first layer of tarmac.

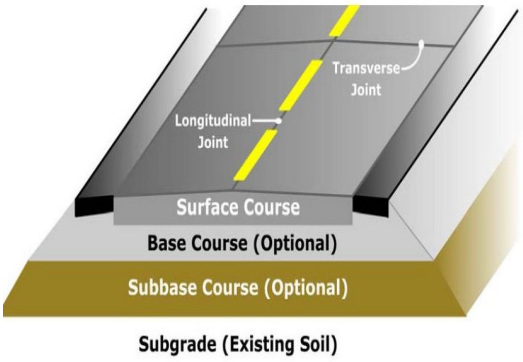

Image 3 Road layout

Ancient Hedgerow to Bridleway

A new road that will link the new Lyminster Bypass with the existing Lyminster Road has undergone groundworks this month, completing the drainage and the placement of the street lighting ducts. For these ducts they are bedded with sand and a warning tape is placed on top, this is so it is clearer for anyone digging where they are, as well as to know what they are.

We have installed the kerbs on the side of the new link road. These kerbs have inlet holes which allow rainwater to drain off the surface and be collected in concrete channels, which are placed under these kerbs. The channels flow into manholes and join the rest of the drainage system.

Image 4 Link road kerbs.

Image 5 Street lighting ducts.

Bridleway to Black Ditch

The viaduct is in the last phase now, being inspected thoroughly to ensure that it is to a high-quality standard. For the deck, we have now started to cover it with a thin layer of waterproofing, allowing for increased protection of the viaduct structure. A layer of concrete will be placed on top of the

waterproofing ready to build up the sides of the road verges. The next stage will be to place the kerbs, to have a divide between the footpath and road.

Image 6 Viaduct.

Image 7 Concrete deck of viaduct.

South of Black Ditch

The soil mixing has began to an area south of the viaduct. Deep soil mixing is a process used in unfavourable ground conditions to give the ground improved properties. This is done by sectioning the area into roughy 5mx5m squares. Each cell gets dug out to around 4m below exisitng ground level, this is so the chalk is reached (as this is stable ground). Once pre-dug, the material taken out is placed back into the excavation and churned with cement and a cement like material, GGBS. The quantities of each material are carefully worked out for each cell to ensure the correct proportion of cement/GGBS to soil.

These will take around a month to reach full strength but but are walkable after a few hours. The soil mixing process has started where the attenuation tank will be, this is so the surrounding material will gain maximum stength so the area can be safetly dug and the tank be put in.

Image 8 Excavation for soil mixing.

Image 9 Soil mixing machines at the southern end of site.

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A284 Lyminster Bypass (North) – June Progress Update

Date: 04/07/2024

This is the latest monthly newsletter updating you on progress made in the construction of the Lyminster Bypass. We hope you find it useful, but please contact us if there is anything you would like more information on or would like to give us any feedback.

Night works

Just a reminder that from Monday 1st July until the morning on Saturday 6th July, there will be nightworks happening on A284 Lyminster Road. The nightworks will be taking place between 8pm until 6am, there may be periods of noisy activities within the site working area during these times.

The nightworks are to facilitate the construction of the tie in from the existing A284 Lyminster Road, to the new bypass.

Due to the works happening on A284 Lyminster Road, there will be a full road closure starting at 8pm, reopening at 6am the following morning.

Vehicular traffic coming from the South (Morrisons) will be able to access as far as our site compound junction – with the exception of resident access.

Vehicular traffic coming from the North (A27 services) will be able to access just past the Brewhouse Project – with the exception of resident access.

There will be a diversion route in place whilst these works are progressing.

It will not be possible to use the closed section of the A284 where the new bypass connects with the existing A284, during the nighttime closures.

Residents who live north of Brookfield stream will not be able to go south through the nightworks, likewise residents south of Brookfield stream will not be able to go north through the nightworks - Residents will have access to their properties throughout the nightworks, however, will need to take the appropriate route to access

Access to polling station

Please be aware that access to polling station will be unimpeded on Thursday 4th July.

North of Ancient Hedgerow

We have been working on the tie in of the new Lyminster bypass and the A284. The tie in is the area where the new Lyminster bypass joins the A284. For this, beanie kerbs have been installed - a type of kerb with holes to catch water runoff from the road and transfer it to the drainage system. We are preparing the tie in area to be tarmacked, which will take place in the beginning of July; the final 'surface course' of tarmac will be laid later in the job. This layer of tarmac is usually completed near the end to ensure a smooth continuous finish. Work will continue on the A284, breaking up the existing road so it is ready to install the second part of the prefabricated culvert.

Heading North from the bridleway, more drainage works have been installed (manholes and drainage pipes) as well as kerbs along both sides of the road and footpath up to Brookfield stream. Once the road is to formation level (a set level where natural material is formed to) then the 'Type 1' is placed (a limestone aggregate), the road is then ready for kerbs after this point, followed by tarmacking.

Image 1 Prefabricated culvert.

Image 2 Formation of road.

Image 3 Beanie kerbs on A284.

Ancient Hedgerow to Bridleway

Street lighting columns and traffic signs have begun to be put up around the link road. Acoustic fencing has been marked out and begun to be put up, this is a 2.5m tall timber and metal fence, engineered to reduce sound levels beyond the fence. Timber fencing with badger mesh also surrounds the area. The badger mesh deters badgers from going into live traffic, instead they can use the designed badger crossing, a concrete tunnel which feeds underneath the road, surpassing the badger mesh.

Image 4 Street light column.

Image 5 Link road.

Bridleway to Black Ditch

Combined drainage kerbs have now been set across the viaduct. These separate the cycle/pedestrian pathway from the new road; they also catch surface runoff and channel it down towards the south of the viaduct. Finishing touches to the viaduct have been ongoing, now removing the scaffolding from the southern end.

Several piers within the viaduct have been jacked up, a similar process to changing your car tyre on a very large scale; this has only been by a miniscule amount, which has been enough to place bearings underneath without causing damage to the viaduct. Bearings are used to separate the bridge piers and the bridge deck, transferring the weight from the deck and allowing for subtle movement. Movement is required to allow for expansion and contraction of the bridge due to factors such as temperature changes.

Waterproofing on the deck has been completed - it is a protective layer sprayed onto the concrete to avoid salt from grit seeping in, which would potentially damage the rebar, steel reinforcement bars within the structure.

Image 6 Water proofing of the viaduct.

Image 7 Bearing between viaduct deck and pier.

South of Black Ditch

Soil mixing continues around the south abutment, it is a process used in unfavourable ground conditions to give the area improved properties, churning the existing ground with cement and GGBS (a cement like substance). The area is sloped around the south end viaduct to ensure even stability.

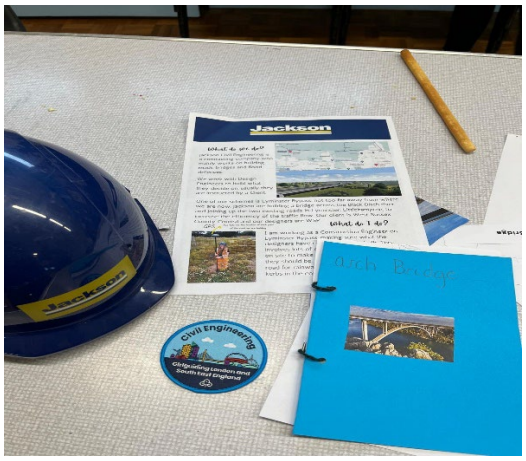
Image 8 South of viaduct.

Image 9 Soil mixing around South end.

Community STEM activity

Over two evening sessions in June, Public Liaison Officer Shannon Acton-Brown and Industrial Placement Abbie Scott facilitated a series of STEM challenges with the 4th Goring Guides and Brownies. The activities included bridge building, drawing, teamwork and communication skills. They were aimed at showing the diversity of roles in civil engineering, such as structural engineering, designer engineering and construction engineering.

In addition to the activities, Abbie, who is a helper at the group, adapted the workbooks to introduce the girls to Jackson Civil Engineering and inform them of the work the company is carrying out at the Lyminster Bypass site.



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A284 Lyminster Bypass (North) – July Progress Update

Date: 07/08/2024

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As you may be aware, the traffic has been temporarily rerouted onto a section of what will become the new carriageway. This is to allow works to progress in the footprint of the existing carriageway, while reducing the wider impact of the general public.

North of Ancient Hedgerow

At the northern end of our site, we have been levelling the type 1 aggregate (made of limestone). This process, known as 'dipping,' involves pulling a string line across the kerbs and measuring down from that line to determine depths. Ensuring even levels of tarmac is crucial. The tarmac construction involves multiple layers: two base layers, one binder layer, and the wearing course. The wearing course directly interacts with traffic and serves to absorb the impact of wear and tear, provides grip, and it also distributes the traffic load to the binder course and prevents water from infiltrating the base course.

After a week of night road closures, we have applied tarmac to the areas connecting to Lyminster Road. This preparation is for the second phase of culvert installation, which will allow traffic to divert around the culvert. A traffic island has also been installed, for use by cyclists and pedestrians. In the next coming week, we will have temporary white lining, this will help clearly separate the two lanes during the traffic switch.

Image 1 Traffic Island

Image 2 Vehicle Restraint System

Image 3 Dipping road

Ancient Hedgerow to Bridleway

The link road serves as a temporary southern connection to the A284 while traffic is diverted onto the new road for culvert installation. Acoustic fencing has been installed around the link road to reduce noise pollution in the surrounding areas.

Core samples have been taken from the newly laid tarmac. Using a coring machine, cylindrical samples were extracted from the ground to a depth of approximately 300mm. This process provides a physical sample for which compaction testing can be undertaken to ensure the number of air voids is within specification. This helps to prove the tarmac complies with the requirements of the scheme.

Image 4 Tarmac tie-in on link road

Image 5 Acoustic fencing along link road

Bridleway to Black Ditch

Most of the combined drainage kerbs have been installed across the viaduct. These kerbs serve to distinguish the cycle/pedestrian pathway from the new road, while also capturing surface runoff and directing it toward the southern part of the viaduct. Further drainage works have continued north of the viaduct, installing manholes and drainage pipes.

Looking out from the viaduct, the aquatic plants in the southern pond are blooming, contributing to the site's biodiversity.

Image 6 Drainage kerbs on viaduct

Image 7 Southern pond

South of Black Ditch

Soil mixing is ongoing around the south abutment. This process is employed in challenging ground conditions to enhance the area's properties. It involves blending the existing soil with cement and GGBS (a cement-like substance). The region near the south end of the viaduct, where soil mixing occurs, has been sloped to ensure stability. The mixed ground will undergo CPT tests (Cone Penetration Testing) to determine parameters such as strength, ensuring a solid foundation for the new road. This process will be completed in the next few weeks, allowing ground works to continue in this area. Additionally, an access track is being constructed south of the viaduct, providing farmers with access to their fields and the Council access for maintenance.

Image 8 Excavation ready for mixing

Image 9 Soil mixing at south side of site

Image 10 Southern access track

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